

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 Claim 1 (currently amended): A waveform equalizer
2 comprising:
3 an equalizing filter unit including a delay circuit
4 with a tap;
5 a discriminator which ~~decodes~~ decodes an output signal
6 of said equalizing filter unit;
7 tap arrangement control means which controls a tap
8 arrangement of said equalizing filter unit; and
9 tap coefficient monitoring unit which monitors a tap
10 coefficient of said equalizing filter unit, and changes the
11 tap arrangement of said equalizing filter unit so as to
12 restart a starting step of equalizing steps for equalizing
13 a reception signal, depending upon a change state of the
14 tap coefficient used while the reception signal is
15 equalized.

1 Claim 2 (original): A waveform equalizer equipped
2 comprising:
3 an equalizing filter unit including a delay circuit
4 with a tap;
5 a discriminator which decodes an output signal of said

6 equalizing filter unit;

7 tap arrangement control means which controls a tap
8 arrangement of said equalizing filter unit; and

9 a tap coefficient monitoring unit which monitors a tap
10 coefficient of said equalizing filter unit, and changes the
11 tap arrangement of said equalizing filter unit so as to
12 restart reception signal equalizing steps from a
13 preselected step prior to the present step thereof while
14 said reception signal is equalized, depending upon a change
15 state of the tap coefficient during the equalization of
16 said reception signal.

1 Claim 3 (original): A waveform equalizer equipped
2 comprising:

3 an equalizing filter unit including a delay circuit
4 with a tap;

5 a discriminator which decodes an output signal of said
6 equalizing filter unit;

7 tap arrangement control means which controls a tap
8 arrangement of said equalizing filter unit;

9 a tap coefficient monitoring unit which monitors a tap
10 coefficient of said equalizing filter unit, and changes the
11 tap arrangement of said equalizing filter unit so as to
12 restart reception signal equalizing steps from a
13 preselected step prior to the present step thereof while
14 said reception signal is equalized, depending upon a change

15 state of the tap coefficient during the equalization of
16 said reception signal, and further so as to repeatedly
17 perform said operation, depending upon a change condition
18 of the tap coefficient while restarting the equalization of
19 said reception signal.

1 Claim 4 (original): A waveform equalizer as claimed
2 in any one of the preceding claims 1, 2, and 3, wherein
3 said tap coefficient monitoring unit monitors only a
4 specific tap, and when a sharp change in a tap coefficient
5 of said specific tap is detected, said tap coefficient
6 monitoring unit instructs that the tap arrangement of said
7 equalizing filter unit is changed so as to restart the
8 equalization of the reception signal.

1 Claim 5 (original): A waveform equalizer as claimed
2 in any one of the preceding claims 1, 2, and 3, wherein
3 said tap coefficient monitoring unit monitors only a
4 specific tap, and when dispersion of a change amount of
5 said tap coefficient exceeds a certain threshold value,
6 said tap coefficient monitoring unit instructs that the tap
7 arrangement of said equalizing filter unit is changed so as
8 to restart the equalization of the reception signal.

1 Claim 6 (original): A waveform equalizer as claimed
2 in any one of the preceding claims 1, 2 and 3, wherein said

3 tap arrangement control means further comprising an
4 impulse response predicting device for predicting an
5 impulse response of a transfer path; and

6 wherein said tap arrangement control means changes the
7 tap arrangement of said equalizing filter unit in such a
8 manner that said tap arrangement becomes suitable for the
9 next impulse having a large pulse component in response to
10 an impulse response predicted by a reference signal.

1 Claim 7 (original): A waveform equalizer as claimed
2 in any one of the preceding claims 1, 2 and 3, wherein said
3 tap arrangement control means comprising an impulse
4 response predicting device for predicting an impulse
5 response of a transfer path; and

6 wherein said tap arrangement control means changes the
7 tap arrangement of said equalizing filter unit in such a
8 manner that said tap arrangement becomes optimum with
9 respect to an impulse response predicted by both the
10 equalized output of said discriminator and a condition of
11 the reception signal.

1 Claim 8 (currently amended): A mobile station
2 wireless apparatus equipped with a waveform equalizer
3 capable of removing an adverse influence caused by
4 frequency selective fading, said wave form equalizer
5 comprising:

6 an equalizing filter unit including a delay circuit
7 ~~wiht~~ with a tap;
8 a discriminator which decodes an output signal of said
9 equalizing filter unit;
10 tap arrangement control means which controls a tap
11 arrangement of said equalizing filter unit; and
12 a tap coefficient monitoring unit which monitors a tap
13 coefficient of said equalizing filter unit, and changes the
14 tap arrangement of said equalizing filter unit so as to
15 restart a starting step of equalizing steps for equalizing
16 a reception signal, depending upon a change state of the
17 tap coefficient used while the reception signal is
18 equalized.

1 Claim 9 (original): A mobile station wireless
2 apparatus equipped with a waveform equalizer capable of
3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit
6 with a tap;

7 a discriminator which decodes an output signal of said
8 equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit; and

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit, and changes the

13 tap arrangement of said equalizing filter unit so as to
14 restart reception signal equalizing steps from a
15 preselected step prior to the present step thereof while
16 said reception signal is equalized, depending upon a change
17 state of the tap coefficient during the equalization of
18 said reception signal.

1 Claim 10 (original): Amobile station wireless
2 apparatus equipped with a waveform equalizer capable of
3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit
6 with a tap;

7 a discriminator which decodes an output signal of said
8 equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit; and

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit, and changes the
13 tap arrangement of said equalizing filter unit so as to
14 restart reception signal equalizing steps from a
15 preselected step prior to the present step thereof while
16 said reception signal is equalized, depending upon a
17 change state of the tap coefficient during the equalization
18 of said reception signal; and further so as to repeatedly
19 perform said operation, depending upon a change condition

20 of the tap coefficient while restarting the equalization of
21 said reception signal.

1 Claim 11 (original): A mobile station wireless
2 apparatus equipped with a waveform equalizer capable of
3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit
6 with a tap;

7 a discriminator which decodes an output signal of said
8 equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit;

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit; and

13 detector means which detects a moving speed of the
14 mobile station wireless apparatus,

15 wherein when the moving speed is higher than a
16 preselected threshold value, the tap arrangement of said
17 equalizing filter unit is changed so as to restart a
18 starting step of equalizing steps for equalizing a
19 reception signal, depending upon a change state of the tap
20 coefficient used while the reception signal is equalized.

1 Claim 12 (original): A mobile station wireless
2 apparatus equipped with a wave form equalizer capable of

3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit
6 with a tap;

7 a discriminator which decodes an output. signal of
8 said equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit;

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit; and

13 detector means which detects a moving speed of the
14 mobile station wireless apparatus,

15 wherein when the moving speed is higher than a
16 preselected threshold value, the tap arrangement of said
17 equalizing filter unit is changed so as to restart
18 reception signal equalizing steps from a preselected step
19 prior to the present step thereof while said reception
20 signal is equalized, depending upon a change state of the
21 tap coefficient during the equalization of said reception
22 signal.

1 Claim 13 (original): A mobile station wireless
2 apparatus equipped with a waveform equalizer capable of
3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit

6 with a tap;

7 a discriminator which decodes an output signal of said
8 equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit;

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit; and

13 detector means which detects a moving speed of the
14 mobile station wireless apparatus,

15 wherein when the moving speed is higher than a
16 preselected threshold value, the tap arrangement of said
17 equalizing filter unit is changed so as to restart
18 reception signal equalizing steps from a preselected step
19 prior to the present step thereof while said reception
20 signal is equalized, depending upon a change state of the
21 tap coefficient during the equalization of said reception
22 signal; and further so as to repeatedly perform said
23 operation, depending upon a change condition of the tap
24 coefficient while restarting the equalization of said
25 reception signal.

1 Claim 14 (original): A base station wireless
2 apparatus equipped with a waveform equalizer capable of
3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit

6 with a tap;

7 a discriminator which decodes an output signal of said
8 equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit; and

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit, and changes the
13 tap arrangement of said equalizing filter unit so as to
14 restart a starting step of equalizing steps for equalizing
15 a reception signal, depending upon a change state of the
16 tap coefficient used while the reception signal is
17 equalized.

1 Claim 15 (original): A base station wireless
2 apparatus equipped with a waveform equalizer capable of
3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit
6 with a tap;

7 a discriminator which decodes an output signal of said
8 equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit; and

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit, and changes the
13 tap arrangement of said equalizing filter unit so as to

14 restart reception signal equalizing steps from a
15 preselected step prior to the present step thereof while
16 said reception signal is equalized, depending upon a change
17 state of the tap coefficient during the equalization of
18 said reception signal.

1 Claim 16 (original): A base station wireless
2 apparatus equipped with a wave form equalizer capable of
3 removing an adverse influence caused by frequency selective
4 fading, said waveform equalizer comprising:

5 an equalizing filter unit including a delay circuit
6 with a tap;

7 a discriminator which decodes an output signal of said
8 equalizing filter unit;

9 tap arrangement control means which controls a tap
10 arrangement of said equalizing filter unit; and

11 a tap coefficient monitoring unit which monitors a tap
12 coefficient of said equalizing filter unit, and changes the
13 tap arrangement of said equalizing filter unit so as to
14 restart reception signal equalizing steps from a
15 preselected step prior to the present step thereof while
16 said reception signal is equalized, depending upon a change
17 state of the tap coefficient during the equalization of
18 said reception signal; and further so as to repeatedly
19 perform said operation, depending upon a change condition
20 of the tap coefficient while restarting the equalization of

21 said reception signal.

1 Claim 17 (original): A mobile communication system
2 having a base station and a mobile station, in which at
3 least one of said base station and said mobile station is
4 equipped with a waveform equalizer capable of removing an
5 adverse influence caused by frequency selective fading,
6 said waveform equalizer comprising:

7 an equalizing filter unit including a delay circuit
8 with a tap;

9 a discriminator which decodes an output signal of said
10 equalizing filter unit;

11 tap arrangement control means which controls a tap
12 arrangement of said equalizing filter unit; and

13 a tap coefficient monitoring unit which monitors a tap
14 coefficient of said equalizing filter unit, and changes the
15 tap arrangement of said equalizing filter unit so as to
16 restart a starting step of equalizing steps for equalizing
17 a reception signal, depending upon a change state of the
18 tap coefficient used while the reception signal is
19 equalized.

1 Claim 18 (original): A mobile communication system
2 having a base station and a mobile station, in which at
3 least one of said base station and said mobile station is
4 equipped with a waveform equalizer capable of removing an

5 adverse influence caused by frequency selective fading,
6 said waveform equalizer comprising:

7 an equalizing filter unit including a delay circuit
8 having a tap;

9 a discriminator which decodes an output signal of said
10 equalizing filter unit;

11 tap arrangement control means which controls a tap
12 arrangement of said equalizing filter unit; and

13 a tap coefficient monitoring unit which monitors a tap
14 coefficient of said equalizing filter unit, and changes the
15 tap arrangement of said equalizing filter unit so as to
16 restart reception signal equalizing steps from a
17 preselected step prior to the present step thereof while
18 said reception signal is equalized, depending upon a change
19 state of the tap coefficient during the equalization of
20 said reception signal.

1 Claim 19 (original): A mobile communication system
2 having a base station and a mobile station, in which at
3 least one of said base station and said mobile station is
4 equipped with a waveform equalizer capable of removing an
5 adverse influence caused by frequency selective fading,
6 said waveform equalizer comprising:

7 an equalizing filter unit including a delay circuit
8 with a tap;

9 a discriminator which decodes an output signal of said

10 equalizing filter unit;
11 tap arrangement control means which controls a tap
12 arrangement of said equalizing filter unit; and
13 a tap coefficient monitoring unit for monitoring a tap
14 coefficient of said equalizing filter unit, and changes the
15 tap arrangement of said equalizing filter unit so as to
16 restart reception signal equalizing steps from a
17 preselected step prior to the present step thereof while
18 said reception signal is equalized, depending upon a change
19 state of the tap coefficient during the equalization of
20 said reception signal; and further so as to repeatedly
21 perform said operation, depending upon a change condition
22 of the tap coefficient while restarting the equalization of
23 said reception signal.

1 Claim 20 (original): A mobile communication system
2 having a base station and a mobile station, in which said
3 mobile station is equipped with a wave form equalizer
4 capable of removing an adverse influence caused by
5 frequency selective fading, said waveform equalizer
6 comprising:
7 an equalizing filter unit including a delay circuit
8 with a tap;
9 a discriminator which decodes an output signal of said
10 equalizing filter unit;
11 tap arrangement control means which controls a tap

12 arrangement of said equalizing filter unit;
13 a tap coefficient monitoring unit which monitors a tap
14 coefficient of said equalizing filter unit; and
15 detector means which detects a moving speed of the
16 mobile station wireless apparatus,
17 wherein when the moving speed is higher than a
18 preselected threshold value, the tap arrangement of said
19 equalizing filter unit is changed so as to restart a
20 starting step of equalizing steps for equalizing a
21 reception signal, depending upon a change state of the tap
22 coefficient used while the reception signal is equalized.

1 Claim 21 (original): A mobile communication system
2 having a base station and a mobile station, in which said
3 mobile station is equipped with a waveform equalizer
4 capable of removing an adverse influence caused by
5 frequency selective fading, said waveform equalizer
6 comprising:

7 an equalizing filter unit including a delay circuit
8 with a tap;

9 a discriminator which decodes an output signal of said
10 equalizing filter unit;

11 tap arrangement control means which controls a tap
12 arrangement of said equalizing filter unit;

13 a tap coefficient monitoring unit which monitors a tap
14 coefficient of said equalizing filter unit; and

15 detector means which detects a moving speed of the
16 mobile station wireless apparatus,
17 wherein when the moving speed is higher than a
18 preselected threshold value, the tap arrangement of said
19 equalizing filter unit is changed so as to restart
20 reception signal equalizing steps from a preselected step
21 prior to the present step thereof while said reception
22 signal is equalized, depending upon a change state of the
23 tap coefficient during the equalization of said reception
24 signal.

1 Claim 22 (original): A mobile communication system
2 having a base station and a mobile station, in which said
3 mobile station is equipped with a waveform equalizer
4 capable of removing an adverse influence caused by
5 frequency selective fading, said waveform equalizer
6 comprising:

7 an equalizing filter unit including a delay circuit
8 with a tap;

9 a discriminator which decodes an output signal of said
10 equalizing filter unit;

11 tap arrangement control means which controls a tap
12 arrangement of said equalizing filter unit;

13 a tap coefficient monitoring unit which monitors a tap
14 coefficient of said equalizing filter unit; and

15 detector means which detects a moving speed of the

16 mobile station wireless apparatus,
17 wherein when the moving speed is higher than a
18 preselected threshold value, the tap arrangement of said
19 equalizing filter unit is changed so as to restart
20 reception signal equalizing steps from a preselected step
21 prior to the present step thereof while said reception
22 signal is equalized, depending upon a change state of the
23 tap coefficient during the equalization of said reception
24 signal; and further so as to repeatedly perform said
25 operation, depending upon a change condition of the tap
26 coefficient while restarting the equalization of said
27 reception signal.